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 United States
Department of
Agriculture

Soil
Conservation
Service

Montana
Agricultural
Experiment
Station

Bozeman,
Montana

MONTANA WATER SUPPLY OUTLOOK

Snowpack and Streamflow Forecasts as of February 1, 1985

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
SNOW SURVEY UNIT
Federal Bldg., Rm. 443
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How cold was it?

The cold spell we experienced near the end of January was by far the coldest of the winter. Few areas in the state escaped the temperatures which dropped far below minus 20 degrees Fahrenheit.

Cold air drainage in the higher mountain valleys causes cold air to "puddle" in low areas and can produce some extremely low temperatures.

Locations such as the areas around Butte and West Yellowstone have become notorious for producing record lows for the nation.

On January 20, 1954, the coldest temperature ever recorded in the Continental United States, a minus 69.7°F, was recorded on Rogers Pass near Helena.

Within the SNOTEL reporting system there are several sites that we expect to record extremely low temperatures. Several have done just that. The coldest temperatures recorded this winter and the locations where they were measured are shown below.

Site	Area	Temp	Date
Calvert Creek	North of Wisdom	-41°F	2-4-85
Nevada Creek	South of Lincoln	-45°F	1-30-85
Casin Creek	South of Butte	-52°F	2-4-85
Whiskey Creek	South of W.Yellowstone	-58°F	1-31-85

The Montana Water Supply Outlook is a publication of the U. S. Soil Conservation Service. The SCS administers the Cooperative Snow Survey Program in cooperation with other federal, state and private agencies, organizations, and individuals.

The report is prepared by SCS, Snow Survey and Water Supply Forecast Staff, Room 443, Federal Building, 10 East Babcock, Bozeman, Montana.



Low snowfall in January

January produced very little snowfall across Montana. The weather patterns that brought large amounts of snowfall to most areas in the state in late December have shifted to cold and dry weather.

In a normal year, about one-fourth of the season's snow accumulation is deposited during the month of January.

As a result, the snowpack percentages have dropped significantly. Presently, the northern half of the state has average or a little above average snowpack while most of the southern half is below average.

Generally, about two-thirds of the season's snowpack has accumulated by February 1. This means the weather patterns that develop over the next 2 to 3 months become very critical in determining the seasonal snowpack levels and the subsequent spring and summer runoffs.



Streamflow forecasts drop

As a result of deficient January snowfall, streamflow forecasts have dropped significantly since last month. Present predictions of spring and summer streamflow are in the near average range for the northern areas of the state and for some of the streams in the southwest. Much of the southern half of Montana can expect runoff 10 to 15 percent below average.

Missouri River & Hudson Bay Drainages

STREAMFLOW FORECASTS

DRAIN, STREAM and/or FORECAST POINT	THIS YEAR				PAST RECORD			
	FORECAST	PERCENT OF AVERAGE	THOUSAND ACRES	PERCENT OF AVERAGE	FORECAST	PERCENT OF AVERAGE	THOUSAND ACRES	PERCENT OF AVERAGE
PERIOD	APRIL - SEPTEMBER				APRIL - JULY			

PED ROCK RIVER near Monida (1)	97.0	94	244	103	88.8	93	212	96.3
BEAVERHEAD RIVER near Grant (2)	152	96	135	158	130	95	337	137
BEAVERHEAD RIVER at Barratts (2)	196	94		209	168	93		180
RUBY RIVER near Alder	91.0	90		101	75.0	89		84.6
BIG HOLE RIVER near Melrose	688	91		760	635	91		698
WILLOW CREEK near Harrison	16.6	83		20.0	15.0	84		17.8
MISSOURI RIVER near Graveling (3)	440	89	575	496	345	89	440	388
MISSOURI RIVER near McAllister (4)	735	87	1,114	808	595	89	874	672
GALLATIN RIVER near Gateway	440	81		545	370	80		464
SUM OF EAST-WEST FORKS HYALITE CR. nr Bozeman (5)	22.9	80		28.6	19.2	78		24.7
HYALITE CREEK near Bozeman (6)	35.7	80		44.8	30.5	79		38.7
GALLATIN RIVER at Logan	484	79		611	415	79		523
MISSOURI RIVER at Toston (7)	2,290	90	3,827	2,545	2,000	91	3,179	2,196
SHEEP CREEK near White Sulphur Springs	19.4	89		21.8	16.8	88		19.0
SUN RIVER at Gibson Dam (8)	565	99	336	570	520	100	296	522
BELL CREEK near Monarch	120	90		134	112	91		123
MISSOURI RIVER at Fort Benton (9)	3,540	89	3,980	3,120	3,120	90	3,468	235
TWO MEDICINE CREEK near Browning (10)	250	101		268	239	102		113
BADGER CREEK near Browning	133	102		130	115	102		74.7
INFLOW SWIFT RESERVOIR near Dupuyer	86.5	100		86.7	75.0	100		108
CUT BANK CREEK at Cut Bank	113	99		114	105	97		518
MARIAS RIVER near Shelby	555	102		542	525	101		4,030
MISSOURI RIVER at Virgelle (11)	4,260	93		4,570	3,700	92		1,383
MISSOURI RIVER near Landusky (11)	4,550	91		4,980	3,950	90		5.4
NORTH FORK MUSSELSHELL RIVER near Oelpeine	55.7	89		64	4.8	89		58.9
SOUTH FORK MUSSELSHELL RIVER above Martinsdale	55.8	89		62.8	53.5	91		4,428
MISSOURI RIVER below Fort Peck Dam (11)	4,500	91		4,961	3,985	90		112
MILK RIVER at Eastern Crossing (Mar-Sept.)	122	112		109				416
MILK RIVER at Eastern Crossing (12) (Mar-Sept.)	300	108		279				
INFLOW LAKE SAKAKAWA ND (11)	11,480	90		12,755	10,890	89		12,239

SASKATCHEWAN RIVER BASIN

SHIFTCURRENT CREEK at Sherburne (13)	130	102	102	128	113	101	87.4	112
ST. MARY'S RIVER near Babb (13)	490	101		487	415	100		

WATER-SUPPLY OUTLOOK

STREAMS OF AREA	Spring Season	Flow Period	Live Season
Beaverhead	Avg	Avg	Fair
Ruby	Avg	Fair	
Big Hole	Avg	Avg	
Boulder	Avg	Fair	
Jefferson	Avg	Fair	
Madison	Avg	Avg	
Gallatin	Avg	Fair	
West-Side Missouri	Avg	Fair	
Smith-Belt	Avg	Fair	
Sun	Avg	Avg	
Teton	Avg	Avg	
Marias	Avg	Avg	
Judith	Avg	Fair	
Musselshell	Avg	Fair	
Milk	Avg	Avg	
Bear Paws	Avg	Avg	
St. Mary's	Avg	Avg	

Missouri forecasts revised downward

All forecasts have been revised downward because of efficient January precipitation.

Current predictions of spring and summer streamflow are for 10 to 15 percent below average runoff on most tributaries in the Missouri River headwaters. Tributaries east of the Missouri River are also forecast to be below average. Most streams on the west side downstream from Canyon Ferry Reservoir should have near average streamflows.

SUMMARY OF SNOW MEASUREMENTS

RIVER BASIN and/or SUBWATERSHED	NUMBER OF GAUGES		THIS YEAR'S SNOW WATER AS PERCENT OF	
	Average	Lowest	Last Year	Normal
Beaverhead	14	98	90	
Ruby	4	82	87	
Big Hole	12	111	89	
Boulder	12	136	87	
Jefferson	42	106	89	
Madison	15	102	88	
Gallatin	15	84	73	
Missouri Headwater	72	100	85	
West-side Missouri (Toston-Cascade)	8	142	90	
Smith-Belt-Arrow	5	116	91	
Missouri Main-stem	13	128	91	
Teton & Sun	3	208	99	
Marias	5	166	97	
Marias-Teton-Sun	8	175	98	
Judith-Musselshell	7	128	91	
Milk	10	182	116	
Bear Paws	6	138	133	
Missouri (Total)	110	115	89	
Saskatchewan				
St. Mary's	5	186	106	
Bow River in Alberta	6	110	90	

January snowfall below average

There was a major turnaround in snowfall during January. Mountain precipitation was very light across the entire drainage with monthly increases of about 1/4 to 1 inch. Normally, 3 to 7 inches of moisture can be expected.

The present snowpack is now below average in most of the headwater areas except for a small part of the Madison River headwaters in Yellowstone National Park. Most of the Missouri main-stem streams are near average.

A month ago, this area was well above average due to large December storms. The jet stream that helped bring in this moisture and mild temperatures in December was flowing west to east across Montana. More recently, it has been traveling from northwest to southeast and bringing cold temperatures with very little moisture.

With these drastic changes in our weather patterns, it becomes very difficult to project how much snowpack will be accumulated this season. As time goes on, hopefully, the patterns will become a little more stable.

SNOW SURVEY DATA

FEBRUARY 1985

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-80
MONTANA						
ARCH FALLS	7350	1/28/85	27	6.5	7.2	8.6
ASHLEY DIVIDE	8820	2/01/85	26	5.9	3.1	5.6
ASHLEY LAKE	4000	2/01/85	22	4.0	2.1	5.0
BADGER PASS	6900	1/28/85	90	21.0	18.0	28.0
BADGER PASS BUTYL	6900	2/01/85	---	---	19.5	25.9
BAHFIELD MOUNTAIN	5600	1/30/85	43	11.1	6.8	17.3
BAHFIELD MTH BUTYL	5600	2/01/85	---	---	13.2	7.2
BARKER LAKES BUTYL	8250	2/01/85	---	---	9.7	10.7
BASTIN CREEK	7180	1/29/85	27	6.3	2.9	5.4
BASTIN CREEK METAL	7180	2/01/85	---	---	5.0	4.6
BEAGLE SPGS METAL	8850	2/01/85	---	---	5.6	5.0
BEAR PAW SHI AREA	5200	1/29/85	28	8.2	5.0	5.3
BIG SHY	7700	2/05/85	42	10.2	9.4	10.2
BLACK BEAR BUTYL	7950	2/01/85	---	---	23.0	22.2
BLACK FINE	7100	1/30/85	27	6.4	5.1	9.7
BLACK FINE BUTYL	7100	2/01/85	---	---	6.5	5.9
BLOODY DICK BUTYL	7550	2/01/85	---	---	7.7	4.7
BLUE LAKE	5900	1/26/85	59	17.0	11.0	17.9
BOULDER MTH BUTYL	7950	2/01/85	---	---	12.4	13.1
BOX CANYON METAL	6700	2/01/85	---	---	6.2	4.9
BRIDGE CREEK	7250	1/29/85	55	12.0	16.0	19.0
BRIDGE CREEK BUTYL	7250	2/01/85	---	---	10.8	13.7
CALVERT CREEK BUTYL	6430	2/01/85	---	---	5.6	4.1
CARTER BASIN BUTYL	9000	2/01/85	---	---	13.9	18.3
CARTER CREEK	7400	2/01/85	16	3.1	4.2	3.4
CASHE CREEK METAL	7800	2/01/85	---	---	6.1	5.8
CHESSMAN RESERVOIR	6700	1/28/85	13	2.8	1.0	2.9
CHICKEN CREEK	4060	1/29/85	35	11.1	8.5	11.4
CLOVER MEADOW METAL	8800	2/01/85	---	---	10.0	12.8
COLE CREEK	7850	1/31/85	34	6.9	9.6	12.2
COLE CREEK BUTYL	7850	2/01/85	---	---	6.6	9.5
COMBINATION	5600	1/30/85	14	2.4	2.7	4.4
COMBINATION BUTYL	5600	2/01/85	---	---	3.1	2.7
COPPER BOTTOM BUTYL	5200	2/01/85	---	---	9.0	6.3
COPPER MOUNTAIN	7700	1/28/85	30	6.0	5.8	7.8
COYOTE HILL	9200	1/29/85	30	8.2	6.1	8.1
CRYSTAL LAKE METAL	6050	2/01/85	---	---	10.5	6.8
DALY CREEK	7600	1/29/85	28	6.5	4.6	8.0
DALY CREEK METAL	5780	2/01/85	---	---	6.6	4.5
DARKHORSE LK. METAL	8700	2/01/85	---	---	12.2	15.7
DEADMAN CREEK BUTYL	6450	2/01/85	---	---	7.2	5.4
DEBERT MOUNTAIN	5800	1/30/85	37	11.4	6.3	11.0
DEVILS SLIDE	8100	1/28/85	39	11.3	14.8	15.2
DISCOVERY BASIN	7050	1/29/85	29	6.2	5.1	7.2
DIVIDE BUTYL	7800	2/01/85	---	---	5.1	7.1
DTX HILL	6400	2/02/85	29	7.2	5.6	8.5
DUPUYER CREEK BUTYL	5750	2/01/85	---	---	7.5	3.6
ENRY CREEK	4350	1/30/85	42	12.6	8.0	10.7
EMERY CREEK BUTYL	4350	2/01/85	---	---	12.7	7.6

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-80
FISH CREEK	8000	1/29/85	27	6.8	4.2	6.4
FISHER CREEK BUTYL	9100	2/01/85	---	19.2	19.2	25.6
FLATTOP MTH BUTYL	6300	2/01/85	---	32.2	20.7	33.0
FOURTH OF JULY	3450	2/05/85	31	8.7	3.3	6.9
FRIADAY HILL	1620	2/05/85	52	17.2	7.4	17.8
FRONNER MEADOWS	6480	1/28/85	20	4.6	3.6	5.9
FRONNER MOWS BUTYL	6480	2/01/85	---	4.5	4.2	5.4
GARVER CREEK	4250	1/30/85	30	7.8	4.8	8.9
GARVER CREEK BUTYL	4250	2/01/85	---	7.5	3.8	7.5
GIBBONS PASS	7100	1/30/85	47	14.2	13.4	16.2
GRAVE CREEK	4300	1/30/85	42	12.8	6.8	12.2
GRAVE CREEK BUTYL	4300	2/01/85	---	13.4	7.3	12.2
HAND CREEK	5030	1/30/85	38	9.5	5.0	9.0
HAND CREEK BUTYL	5030	2/01/85	---	9.0	4.4	10.7
HAWKINS LAKE	6450	1/30/85	56	22.0	12.1	22.6
HAWKINS LAKE BUTYL	6450	2/01/85	---	17.6	10.6	21.2
HEART LAKE TRAIL	1800	2/01/85	59	19.1	10.6	15.7
HEBGEN DAM	6550	1/31/85	28	5.9	8.6	8.8
HELL ROARING DIVIDE	5770	1/31/85	58	19.9	15.7	22.4
HEPRIG JUNCTION	4850	1/29/85	52	18.2	11.2	17.7
HOLBROOK	4530	1/26/85	30	7.5	3.5	7.5
HOOD MEADOW	6600	1/28/85	24	5.4	6.6	7.8
HOODHOOD BASIN	6050	2/01/85	102	42.0	26.2	34.8
HOODHOOD BASIN BUTYL	6050	2/01/85	---	32.1	21.5	28.3
HOODHOOD CREEK	5900	2/01/85	97	37.3	24.6	32.4
INTERGAARD	6450	1/29/85	21	4.5	2.8	5.9
JOHNSON PARK	6450	1/29/85	17	3.4	2.8	5.5
KINGS HILL	7500	1/31/85	36	9.7	7.6	9.9
KIWAH CAMP	3720	1/29/85	7	1.2	1.6	1.9
KRAFT CREEK METAL	4750	2/01/85	---	9.4	7.3	9.7
LAKEVIEW CANYON	6930	1/28/85	26	6.4	6.2	8.5
LAKEVIEW RIDGE	7400	1/28/85	24	6.2	5.5	7.6
LAKEVIEW RDG. METAL	7400	2/01/85	---	8.8	7.1	7.1
LEHIGH RIDGE BUTYL	8100	2/01/85	---	6.4	4.5	6.9
LICH CREEK	6860	1/28/85	25	5.1	5.8	7.0
LICH CREEK BUTYL	6860	2/01/85	---	6.6	4.9	5.7
LOME MOUNTAIN	8880	2/05/85	48	14.9	15.2	15.7
LOWER TWIN METAL	7900	2/01/85	---	11.6	12.3	13.4
LUBRECHT FLUME	4680	1/28/85	15	2.8	2.0	5.0
LUBRECHT FLUME BUTYL	4680	2/01/85	---	3.8	2.7	3.7
LUBRECHT FOREST NO 3	5450	1/29/85	17	3.6	3.0	3.7
LUBRECHT FOREST NO 4	4650	1/29/85	7	1.6	1.1	3.1
LUBRECHT FOREST NO 6	4040	1/29/85	8	1.6	.9	3.6
LUBRECHT HYDROPLANT	4200	1/28/85	14	2.8	3.0	5.6
MANY GLACIER	4900	1/31/85	48	14.6	7.5	14.5
MANY GLACIER BUTYL	4900	2/01/85	---	14.0	7.0	13.5
MARTAS PASS	5250	2/02/85	44	15.5	5.9	11.8
MAYHARD CREEK	6210	1/29/85	35	6.8	8.3	11.4
MAYHARD CREEK BUTYL	6210	1/29/85	---	5.0	5.3	9.0
MOHAWK PEAK METAL	8850	2/01/85	---	10.7	10.9	15.7
MOHAWK RESEPOVORT	6850	1/30/85	21	6.8	3.7	5.2
MT LOCHART BUTYL	6000	2/01/85	---	13.4	8.6	15.2
MULE CREEK METAL	8300	2/01/85	---	8.9	8.5	8.9
NEVADA CREEK METAL	6480	2/01/85	---	9.7	4.7	7.2
NEW WORLD	6900	1/29/85	40	8.5	9.2	10.5
NOVATO MOUNTAIN	5600	2/05/85	72	28.4	15.2	24.7
NEZ PERCE CAMP BUTYL	5450	2/01/85	---	9.2	8.6	10.1
NEZ PERCE CREEK	6600	1/28/85	18	3.4	3.6	5.1

Columbia River Drainage

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR		PAST RECORD		THIS YEAR		PAST RECORD		THIS YEAR		PAST RECORD	
	FORECAST		THOUSAND ACRE FEET		FORECAST		THOUSAND ACRE FEET		FORECAST		THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average
PERIOD	APRIL - SEPTEMBER				APRIL - JULY				APRIL - JUNE			
KOOTENAI RIVER below Libby Dam (1)	6,640	94	5,466	7,041	5,690	94	4,520	6,020				
FISHER RIVER near Libby	285	108		264	270	109		248				
YAKA RIVER near Troy	485	93		523	460	92		500				
KOOTENAI RIVER at Leona (1)	7,960	93	6,534	8,602	6,940	93	5,596	7,498	5,500	91	4,282	6,051
INFLOW MOUTON RESERVOIR nr Butte (Million Gallons)				230	87	182	263	210	89	179	237	
WASH SPRINGS CREEK AT HEYERS DAM near Anaconda (2)	43.4	93		46.8	35.0	93		37.8				
FLINT CREEK near Southern Cross (3)	16.4	90	26.3	18.3	13.8	90	21.3	15.4				
FLINT CREEK below Boulder Creek (4)	67.5	89		75.8	53.5	90		59.5				
INFLOW LOWER WILLOW CREEK RESERVOIR near Hall (5)	14.0	89	11.6	15.7	13.2	88	10.2	14.9				
MIDDLE FORK ROCK CREEK near Phillipsburg	70.9	91		78.2	64.0	91		70.5				
NEVADA CREEK near Finn	19.8	86		23.0	18.4	86		21.3				
BLACKFOOT RIVER near Bonner	730	93		999	830	92		704	718	92		782
CLARK FORK RIVER above Milltown (6)	740	91		816	640	90		708	545	91		597
CLARK FORK RIVER above Missoula	1,670	92	1,565	1,815	1,470	91	1,360	1,612	1,263	92	880	1,379
WEST FORK BITTERROOT RIVER near Conner (7)	158	89		178	150	91		164				
BITTERROOT RIVER near Darby	512	88		580	475	89		532	419	90		464
SKALKAH CREEK near Hamilton	68.8	87		56.0	42.5	87		48.7				
BURNT FORK CREEK near Stevensville (8)	32.5	87		37.4	28.4	88		32.2				
BITTERROOT RIVER at Missoula (9)	1,295	86		1,504	1,200	87		1,384	1,040	87		1,191
CLARK FORK RIVER below Missoula	2,970	90		3,319	2,670	90		2,976	2,303	90		2,570
CLARK FORK RIVER at St. Regis	4,010	91	3,732	4,411	3,620	91	3,322	3,928	3,120	91	2,825	3,428
NORTH FORK FLATHEAD RIVER near Columbia Falls	1,925	101		1,913	1,750	101		1,732	1,490	101		1,471
MIDDLE FORK FLATHEAD RIVER near West Glacier	1,850	99	1,316	1,869	1,710	100	1,236	1,713	1,425	98	1,086	1,453
SOUTH FORK FLATHEAD RIVER near Columbia Falls (10)	2,280	100	1,515	2,278	2,150	100	1,694	2,142	1,870	99	1,416	1,886
FLATHEAD RIVER at Columbia Falls (10)	6,165	99	4,738	6,208	5,770	101	4,294	5,721	5,015	102	3,589	4,921
SWAN RIVER near Big Fork	710	103		689	625	103		604				
FLATHEAD RIVER near Polson (11)	7,370	101	5,586	7,278	6,865	102	5,102	6,712	5,834	101	4,284	5,759
CLARK FORK RIVER near Plains (11)	11,700	96	9,695	12,153	10,700	97	8,914	11,071	9,175	97	7,457	9,459
THOMPSON RIVER near Thompson Falls	275	105		261	250	107		233				
PROSPECT CREEK at Thompson Falls	155	109		142	145	110		132				
CLARK FORK RIVER at Whitehorse Rapids (12)	12,900	95	13,575	11,700	95		12,351	10,040	95		10,570	

- (1) Adjusted for storage in Lake Kootenai.
- (2) Adjusted for storage in Silver Lake, diversions to and pumping from Georgetown Lake.
- (3) Adjusted for storage in Georgetown Lake, diversions from and pumping to Silver Lake.
- (4) Sum of Flint Creek at Havill and Boulder Creek at Maxville.
- (5) Sum of North Fork Lower Willow Creek near Hall and South Fork Lower Willow Creek near Hall.
- (6) Difference in observed flow Clark Fork above Missoula and Blackfoot near Bonner.

- (7) Adjusted for storage in Peajotoe Reservoir.
- (8) Adjusted for diversion into Sunset Highway Canal.
- (9) Difference in observed flow Clark Fork above and below Missoula.
- (10) Adjusted for storage in Hungry Horse Reservoir.
- (11) Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.
- (12) Adjusted for storage in Hungry Horse Reservoir, Flathead Lake and Hoxon Rapids Reservoir.

ALL FORECASTS PREPARED IN COOPERATION WITH THE NATIONAL WEATHER SERVICE

WATER SUPPLY OUTLOOK

STREAM or AREA	Expressed as "Poor, Fair, Average, Excellent" with Reason for Outlook Supply.	
	Spring Season	Late Season
Tobacco	Avg	Avg
Little Bitterroot	Avg	Avg
Mission Valley	Avg	Avg
Flint Creek	Avg	Fair
Upper Clark Fork	Avg	Fair
Nevada Creek	Avg	Fair
Blackfoot	Avg	Avg
West-side Bitterroot	Avg	Fair
East-side Bitterroot	Avg	Fair
Bitterroot River	Avg	Fair
Lower Clark Fork	Avg	Avg

SUMMARY of SNOW MEASUREMENTS

RIVER BASIN and/or SUBWATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average
East Kootenai/BC	18	122	85
Kootenai/Montana	18	183	105
Kootenai above Bonners Ferry	36	151	96
Little Bitterroot	3	182	98
N. Fk. Flathead	10	152	100
M. Fk. Flathead	9	164	101
S. Fk. Flathead	9	135	112
Swan	6	117	108
Flathead	37	143	104
Stillwater & Whitefish	5	145	93
Clark Fork above Blackfoot	27	135	84
Blackfoot	13	139	86
Upper Clark Fork above Missoula	40	136	85
Bitterroot	10	120	87
Lower Clark Fork below Missoula	11	169	114
Clark Fork (Total w/o Flathead)	61	144	96
Pend O'Reille (Clark Fork & Flathead)	98	144	100
Columbia (Pend O'Reille & Kootenai)	134	146	99

Yellowstone River Drainage

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR		PAST RECORD		THIS YEAR		PAST RECORD	
	FORECAST		THOUSAND ACRE FEET		FORECAST		THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average	Thousand Acre Feet	Percent of Average
PERIOD	APRIL - SEPTEMBER				APRIL - JULY			
YELLOWSTONE RIVER at Corvan Springs	1,869	92			1,530	91	1,622	1,686
YELLOWSTONE RIVER near Livingston	2,168	91	1,907	2,027	1,800	91		1,969
BOULDER RIVER at Big Timber	362	82		2,370	295	81		366
STILLWATER near Absarokee (1)	568	90		632	475	90		528
CLARKS FORK RIVER near Belfry	528	83		628	468	83		563
ROCK CREEK near Red Lodge	96.2	84		115	73.2	83		88.1
INFLOW COONEY RESERVOIR near Boyd (2)	36.2	76		60.5	37.0	75		49.5
YELLOWSTONE RIVER at Billings	4,156	93	4,262	4,516	3,610	94	3,591	3,833
BIGHORN RIVER near St. Xavier (3)	1,712	87	1,974	1,976	1,575	88	1,688	1,794
LITTLE BIGHORN RIVER near Hardin	181	88		182	143	88		162
TONGUE RIVER near Ocker	225	84		269	204	84		244
YELLOWSTONE RIVER at Miles City (4)	6,156	90		6,787	5,375	91		5,906
POWDER RIVER at Moorhead	223	85		263	209	86		243
YELLOWSTONE RIVER near Sidney (5)	6,673	89		7,518	5,825	89		6,544

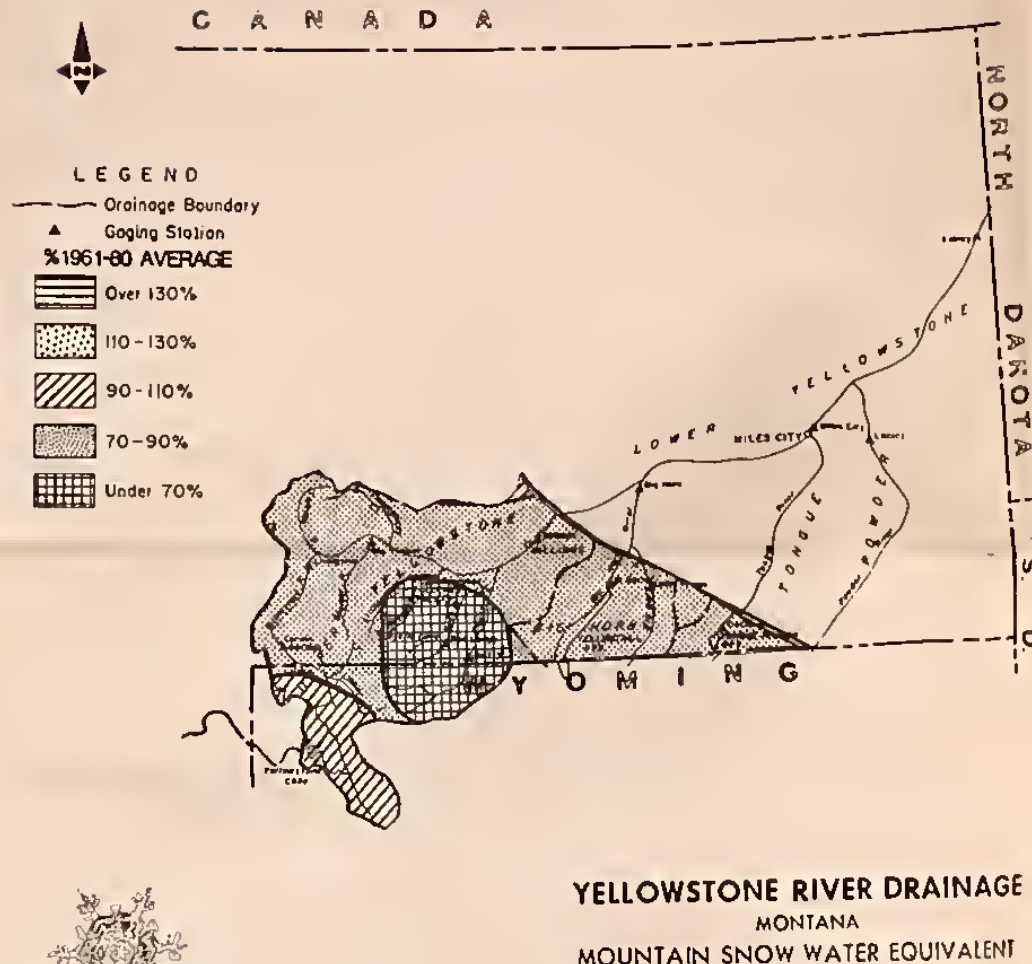
- (1) Adjusted for storage in Mystic Lake.
- (2) Adjusted for storage in Cooney Reservoir.
- (3) Adjusted for storage in Buffalo Bill, Boysee, Bull Lake, Pilot Butte and Bighorn Reservoirs.
- (4) Adjusted for storage in Bull Lake, Buffalo Bill, Boysee, Pilot Butte, Bighorn and Tongue River Reservoirs.
- (5) Adjusted for reservoirs shown in (4) and diversions into the Lower Yellowstone Canal.

ALL FORECASTS PREPARED IN COOPERATION WITH THE NATIONAL WEATHER SERVICE

Yellowstone streams below average

Streamflow forecasts are lower now than they were on January 1, due to low January precipitation. Presently, most streams are predicted to have flows 10 to 15 percent below average.

Conditions in the Yellowstone River headwaters are a little better than on downstream tributaries.



YELLOWSTONE RIVER DRAINAGE
MONTANA
MOUNTAIN SNOW WATER EQUIVALENT

WATER SUPPLY OUTLOOK

STREAM or AREA	Expressed as "Poor, Fair, Average, Excellent" with Reason for Outlook Supply.	
	Spring Season	Late Season
Yellowstone at Livingston	Avg	Fair
Shields	Avg	Fair
Boulder	Fair	Fair
Sweetgrass - Big Timber	Avg	Fair
Stillwater	Fair	Fair
Rock Creek	Fair	Fair
Clark's Fork	Fair	Fair
Yellowstone above Bighorn	Avg	Fair
Bighorn	Avg	Avg
Little Bighorn	Fair	Fair
Tongue	Fair	Fair
Powder	Fair	Fair
Lower Yellowstone	Avg	Fair

Snowfall light in Yellowstone

January was not a good snowfall month. Snowfall was very light for most of the month with a little moisture coming near its end. Snow water content increases were in the 1/2 to 1-inch range for most locations.

This low snowfall dropped the current snowpack to below average in all but the headwater drainages in Yellowstone National Park. There, the snowpack is near to a little below average.

The area from West Rosebud, Red Lodge and Rock Creek across to the Clark's Fork in Montana and Wyoming has well below average snow. Extremely cold temperatures were recorded across the entire drainage near the end of January.

The weather patterns are presently unstable and only time will tell how this year's snow accumulation will stack up.

SUMMARY of SNOW MEASUREMENTS

RIVER BASIN and/or SUBWATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average
Upper Yellowstone ab Livingston	12	108	80
Shields	5	82	63
Boulder & Stillwater	4	99	73
Rock Creek & Clark's Fork	9	91	70
Yellowstone (ab Bighorn River)	30	97	73
Bighorn/Wyoming	29	81	71
Little Bighorn	3	88	74
Tongue	10	94	83
Powder	7	90	84
Yellowstone (Total)	76	90	74



Snowpack in the headwaters of the Clark's Fork River in the Yellowstone River drainage is about 70 percent of average.

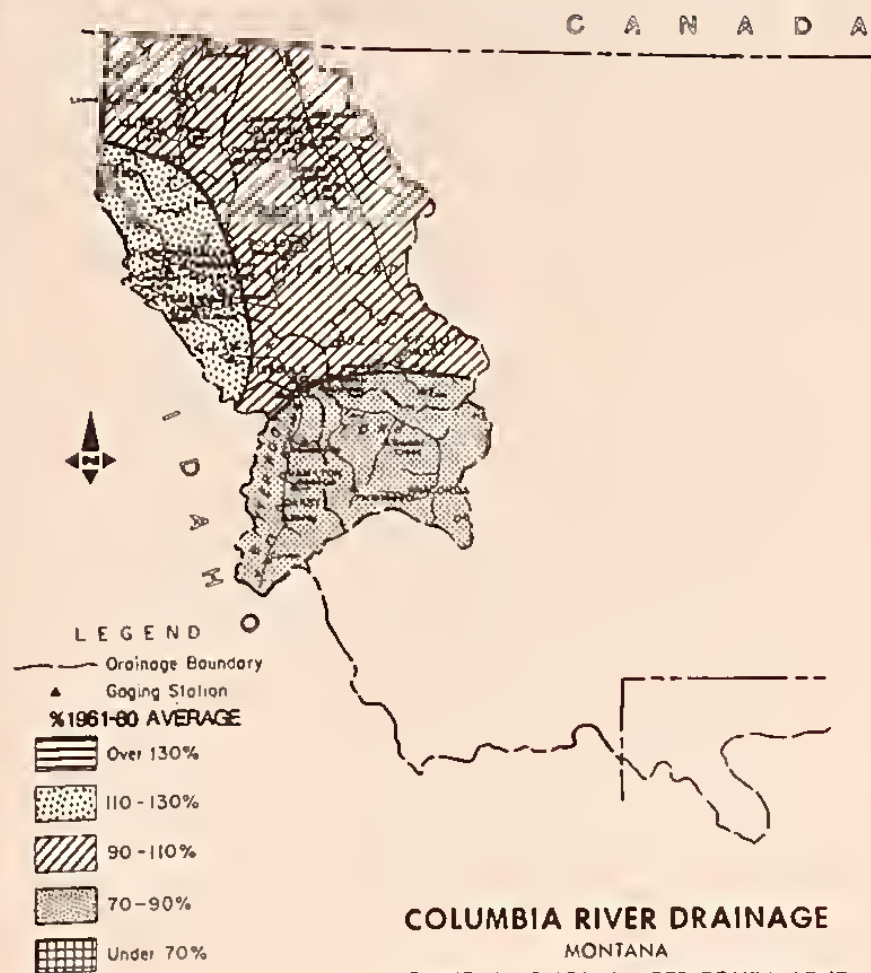
Snowpack percentages drop in Columbia

Snowfall in January was very low. Heavy snowpack areas that normally receive 6 to 8 inches of moisture generally picked up less than 2 inches. Snow surveyors reported that January 1 snowshoe tracks and snow sampling holes in the snow are still visible at some snow courses.

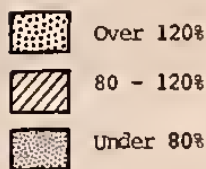
This very low precipitation for January has significantly dropped the snowpack percentages.

Areas that were well above average last month are now near average. Areas that were average are now below average.

At the present time, only a small area along the Montana-Idaho line from Lolo Pass to west of Libby has above average snowpack. Almost all of the Kootenai and Flathead River drainages and the northern part of the Blackfoot River have near average snow cover. Below average snowpack covers the Bitterroot, Upper Clark Fork and south half of the Blackfoot River drainages.



COLUMBIA RIVER DRAINAGE
MONTANA
MOUNTAIN SNOW WATER EQUIVALENT



VALLEY PRECIPITATION
JANUARY 1985

Source: NWS
Great Falls, MT



This winter's snow accumulation is below average in many mountain areas.

AGENCIES AND ORGANIZATIONS COOPERATING IN MONTANA SNOW SURVEYS

GOVERNMENT AGENCIES

Canada

- Department of the Environment
- Atmospheric Environment Service
- Water Management Service
- British Columbia Ministry of Environment
- Inventory and Engineering Branch, Hydrology Section
- Alberta Environment
- Technical Services Division

Federal

- Department of the Army - Corps of Engineers
- Department of Agriculture - Forest Service
- Department of Commerce - National Conservation Service
- Department of Commerce - National Environmental Satellite Service
- Department of Commerce - National Weather Service
- Department of Interior - Bureau of Indian Affairs
- Department of Interior - Fish and Wildlife Service
- Department of Interior - Geological Survey
- Department of Interior - National Park Service
- Department of Interior - Bureau of Reclamation
- Department of Energy - Bonneville Power Administration

STATE AGENCIES

- Montana Conservation Districts
- Montana Department of Fish, Wildlife and Parks
- Montana Department of Natural Resources and Conservation
- Montana State University - Agricultural Experiment Station
- University of Montana - School of Forestry

PRIVATE ORGANIZATIONS

- The Anaconda Company
- Big Sky of Montana
- Butte Water Company
- Flathead Valley Community College
- Montana Power Company
- Pondera County Canal & Reservoir Company

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.

RESERVOIR STORAGE (Thousand Acre Feet) END OF MONTH January 31, 1985

Basin or Stream	RESERVOIR	Usable Capacity	Usable Storage		
			This Year	Last Year	Average
COLUMBIA					
Kootenai	Kootenai	5,748.2	2,113.0	3,619.0	2,406.0
Flathead	Hungry Horse	3,451.0	2,308.0	2,611.0	2,353.0
	Flathead Lake	1,791.0	835.3	875.0	1,179.0
	Camas (4)	45.2	17.0	29.0	11.1
	Mission Valley (8)	100.3	34.7	55.9	36.6
Clark Fork	Georgetown Lake	31.0	26.6	27.5	26.9
	Lower Willow Creek	4.9	0.3	3.3	1.4
	Nevada Creek	12.6	4.3	6.9	4.4
	Noxon Rapids	334.6	323.7	318.9	312.2
Bitterroot	Painted Rocks	31.7	---	8.7	16.5
	Como	34.9	7.9	10.8	10.5
MISSOURI					
Beaverhead	Lima	84.0	25.9	51.4	34.4
	Clark Canyon	257.2	149.2	177.1	138.7
Ruby	Ruby	38.8	24.1	27.0	23.3
Madison	Hebgen Lake	377.5	310.2	262.1	232.6
	Ennis Lake	41.0	31.0	30.3	35.6
Gallatin	Middle Creek	8.0	3.8	3.9	3.3
Missouri	Canyon Ferry	2,043.0	1,459.0	1,723.0	1,613.0
	Hauser & Helena	61.9	63.2	63.0	60.4
	Helena Valley	9.2	4.6	4.3	5.6
	Lake Helena	10.4	10.9	10.9	10.0
	Holter Lake	81.9	76.3	81.0	69.4
	Fort Peck Lake	18,910.0	15,900.0	16,050.0	15,050.0
Smith	Smith River	10.6	8.8	9.2	6.5
	Newlan Creek	12.4	9.8	8.8	9.2
Musselshell	Bair	7.0	0.4	2.9	4.3
	Martinsdale	23.1	5.8	13.9	9.5
	Deadman's Basin	72.2	---	56.5	43.2
Sun	Gibson	99.1	47.1	50.6	40.8
	Willow Creek	32.2	12.6	24.3	20.4
	Pishkun	32.0	18.5	19.6	16.5
Marias	Lower Two Medicine	11.9	---	---	6.8
	Four Horns	19.2	---	---	12.5
	Swift	30.0	7.9	11.9	14.1
	Lake Frances	111.9	23.8	47.2	70.0
Milk	Elwell (Tiber)	1,347.0	675.8	692.3	545.6
	Beaver Creek	3.5	0.9	3.1	1.7
	Fresno	127.2	9.9	24.6	58.0
	Nelson	66.8	13.2	40.5	40.0
HUDSON RAY					
St. Mary's	Lake Sherburne	64.3	35.2	37.3	19.5
YELLOWSTONE					
Stillwater	Mystic Lake	21.0	2.3	7.5	10.3
Clark's Fork	Cooney	27.4	18.8	16.5	14.0
Tongue	Tongue River	68.0	16.6	14.7	30.2
Bighorn	Bighorn Lake	1,356.0	907.4	879.6	609.2